




Full text available:  pdf(1385.22 KB)

Additional information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This tutorial surveys design methods for energy-efficient system-level design. We consider electronic systems consisting of a hardware platform and software layers. We consider the three major constituents of hardware that consume energy, namely computation, communication, and storage units, and we review methods of reducing their energy consumption. We also study models for analyzing the energy cost of software, and methods for energy-efficient software design and compilation. This survey ...

- 6 **MANTIS OS: an embedded multithreaded operating system for wireless micro sensor platforms**  
Shah Bhatti, James Carlson, Hui Dai, Jing Deng, Jeff Rose, Anmol Sheth, Brian Shucker, Charles Gruenwald, Adam Torgerson, Richard Han  
August 2005  
**Mobile Networks and Applications**, Volume 10 Issue 4

Publisher: Kluwer Academic Publishers

Full text available:  pdf(1.27 MB)


Additional information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The MANTIS Multimodal system for Networks of In-situ wireless Sensors provides a new multithreaded cross-platform embedded operating system for wireless sensor networks. As sensor networks accommodate increasingly complex tasks such as compression/aggregation and signal processing, preemptive multithreading in the MANTIS sensor OS (MOS) enables micro sensor nodes to natively interleave complex tasks with time-sensitive tasks, thereby mitigating the bounded buffer producer-consumer problem. To ac ...

**Keywords:** cross-platform, dynamic reprogramming, embedded operating system, lightweight, low power, multithreaded, sensor networks

- 6 **Level set and PDE methods for computer graphics**  
David Breen, Ron Fedkiw, Ken Museth, Stanley Osher, Guillermo Sapiro, Ross Whitaker  
August 2004  
**ACM SIGGRAPH 2004 Course Notes SIGGRAPH '04**

Publisher: ACM Press


Full text available:  pdf(17.07 MB)

Additional information: [full citation](#), [abstract](#), [citations](#)

Level set methods, an important class of partial differential equation (PDE) methods, define dynamic surfaces implicitly as the level set (iso-surface) of a sampled, evolving nD function. The course begins with preparatory material that introduces the concept of using partial differential equations to solve problems in computer graphics, geometric modeling and computer vision. This will include the structure and behavior of several different types of differential equations, e.g. the level set eq ...

- 7 **Systems, platforms, and applications: MANTIS: system support for multimodal Networks of in-situ sensors**  
H. Abrach, S. Bhatti, J. Carlson, H. Dai, J. Rose, A. Sheth, B. Shucker, J. Deng, R. Han  
September 2003  
**Proceedings of the 2nd ACM international conference on Wireless sensor networks and applications WSNA '03**

Publisher: ACM Press

Full text available:  pdf(424.53 KB)


Additional information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The MANTIS Multimodal system for Networks of In-situ wireless Sensors provides a new multithreaded embedded operating system integrated with a general-purpose single-board hardware platform to enable flexible and rapid prototyping of wireless sensor networks. The key design goals of MANTIS are ease of use, i.e. a small learning curve that encourages novice programmers to rapidly prototype novel sensor networking applications in software and hardware, as well as flexibility, ...

**Keywords:** GPS, dynamic reprogramming, lightweight, multimodal prototyping, operating systems, wireless sensor networks

- 8 **Kernels: Verigo: automatic performance-setting for Linux**  
Krisztian Flautner, Trevor Mudge  
December 2002  
**ACM SIGOPS Operating Systems Review**, Volume 36 Issue SI

Publisher: ACM Press

Full text available:  pdf(2.01 MB)

Additional information: [full citation](#), [abstract](#), [references](#)

Combining high performance with low power consumption is becoming one of the primary objectives of processor designs. Instead of relying just on sleep mode for conserving power, an increasing number of processors take advantage of the fact that reducing the clock frequency and corresponding operating voltage of the CPU can yield quadratic decrease in energy use. However, performance reduction can only be beneficial if it is done transparently, without causing the software to miss its deadlines. ...

- 9 **Devirtualizable virtual machines enabling general, single-node, online maintenance**  
David E. Lowell, Yasushi Saito, Eileen J. Samberg  
October 2004  
**ACM SIGARCH Computer Architecture News**, **ACM SIGOPS Operating Systems**



**Review , ACM SIGPLAN Notices , Proceedings of the 11th international conference on Architectural support for programming languages and operating systems ASPLOS-XI, Volume 32 , 38 , 39 Issue 5 , 5 , 11**

Publisher: ACM Press

Full text available: pdf(174.01 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Maintenance is the dominant source of downtime at high availability sites. Unfortunately, the dominant mechanism for reducing this downtime, cluster rolling upgrade, has two shortcomings that have prevented its broad acceptance. First, cluster-style maintenance over many nodes is typically performed a few nodes at a time, making maintenance slow and often impractical. Second, cluster-style maintenance does not work on single-node systems, despite the fact that their unavailability during maintenance ...

**Keywords:** availability, online maintenance, planned downtime, virtual machines

10



**Wireless & mobility: A time series-based approach for power management in mobile processors and disks**

Xiaotao Liu, Prashant Shenoy, Weibo Gong

June 2004

**Proceedings of the 14th international workshop on Network and operating systems support for digital audio and video NOSSDAV '04**

Publisher: ACM Press

Full text available: pdf(101.45 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In this paper, we present a time series-based approach for managing power in mobile processors and disks that see multimedia workloads. Since multimedia applications impose soft real-time constraints, a key goal of our approach is to reduce energy consumption of multimedia applications without degrading performance. We present simple statistical techniques based on time series to dynamically compute the processor and I/O demands of multimedia applications and present techniques to dynamically va ...

**Keywords:** dynamic rotations per minute, dynamic voltage scaling, multimedia, power management

11



**Distributed operating systems**

Andrew S. Tanenbaum, Robbert Van Renesse

December 1985

**ACM Computing Surveys (CSUR), Volume 17 Issue 4**

Publisher: ACM Press

Full text available: pdf(5.49 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Distributed operating systems have many aspects in common with centralized ones, but they also differ in certain ways. This paper is intended as an introduction to distributed operating systems, and especially to current university research about them. After a discussion of what constitutes a distributed operating system and how it is distinguished from a computer network, various key design issues are discussed. Then several examples of current research projects are examined in some detail ...

12



**Special session on reconfigurable computing: The happy marriage of architecture and application in next-generation reconfigurable systems**

Ingrid Verbauwhede, Patrick Schaumont

April 2004

**Proceedings of the 1st conference on Computing frontiers CF '04**

Publisher: ACM Press

Full text available: pdf(398.28 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

New applications and standards are first conceived only for functional correctness and without concerns for the target architecture. The next challenge is to map them onto an architecture. Embedding such applications in a portable, low-energy context is the art of molding it onto an energy-efficient target architecture combined with an energy efficient execution. With a reconfigurable architecture, this task becomes a two-way process where the architecture adapts to the application and vice-vers ...

**Keywords:** embedded, real-time systems

13



**Energy awareness: Energy consumption and conservation in mobile peer-to-peer systems**

Selim Gurun, Priya Nagpurkar, Ben Y. Zhao

September 2006

**Proceedings of the 1st international workshop on Decentralized resource sharing in mobile computing and networking MobiShare '06**

Publisher: ACM Press



Full text available: pdf(130.60 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Today's mobile devices are growing in number and computational resources. Devices capable of storing gigabytes of digital content are becoming ubiquitous, making them an ideal platform for peer-to-peer content delivery and sharing. However, the always on communication patterns of P2P



networks is not a natural fit for energy-constrained mobile devices. In this paper, we perform a detailed study of energy consumption of a structured P2P overlay on a PDA device. Using actual energy measurements, we ...

**Keywords:** DHTs, mobility, peer-to-peer, structured overlays



- 14  **Security: SECA: security-enhanced communication architecture**  
Joel Coburn, Srivaths Ravi, Anand Raghunathan, Srimat Chakradhar  
September 2005 **Proceedings of the 2005 international conference on Compilers, architectures and synthesis for embedded systems CASES '05**  
Publisher: ACM Press  
Full text available:  pdf(396.53 KB)  
Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this work, we propose and investigate the idea of enhancing a System-on-Chip (SoC) communication architecture (the fabric that integrates system components and carries the communication traffic between them) to facilitate higher security. We observe that a wide range of common security attacks are manifested as abnormalities in the system-level communication traffic. Therefore, the communication architecture, with its global system-level visibility, can be used to detect them. The communication architecture ...

**Keywords:** AMBA Bus, access control, architecture, attacks, bus, communication, digital rights management (DRM), intrusion detection, security, security-aware design, small embedded systems, system-on-chip (SoC)



- 15  **Real-time volume graphics**  
Klaus Engel, Markus Hadwiger, Joe M. Kniss, Aaron E. Lefohn, Christof Rezk Salama, Daniel Weiskopf  
August 2004 **ACM SIGGRAPH 2004 Course Notes SIGGRAPH '04**  
Publisher: ACM Press  
Full text available:  pdf(7.63 MB)  
Additional Information: [full citation](#), [abstract](#)

The tremendous evolution of programmable graphics hardware has made high-quality real-time volume graphics a reality. In addition to the traditional application of rendering volume data in scientific visualization, the interest in applying these techniques for real-time rendering of atmospheric phenomena and participating media such as fire, smoke, and clouds is growing rapidly. This course covers both applications in scientific visualization, e.g., medical volume data, and real-time rendering, ...

- 16  **Managing battery lifetime with energy-aware adaptation**  
Jason Flinn, M. Satyanarayanan  
May 2004 **ACM Transactions on Computer Systems (TOCS)**, Volume 22 Issue 2  
Publisher: ACM Press  
Full text available:  pdf(1.61 MB)  
Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


We demonstrate that a collaborative relationship between the operating system and applications can be used to meet user-specified goals for battery duration. We first describe a novel profiling-based approach for accurately measuring application and system energy consumption. We then show how applications can dynamically modify their behavior to conserve energy. We extend the Linux operating system to yield battery lifetimes of user-specified duration. By monitoring energy supply and demand and ...

**Keywords:** Power management, adaptation

- 17  **Recovering device drivers**  
Michael M. Swift, Muthukaruppan Annamalai, Brian N. Bershad, Henry M. Levy  
November 2006 **ACM Transactions on Computer Systems (TOCS)**, Volume 24 Issue 4  
Publisher: ACM Press  
Full text available:  pdf(385.93 KB)  
Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This article presents a new mechanism that enables applications to run correctly when device drivers fail. Because device drivers are the principal failing component in most systems, reducing driver-induced failures greatly improves overall reliability. Earlier work has shown that an operating system can survive driver failures &lsqb;Swift et al. 2005&rsqb;, but the applications that depend on them cannot. Thus, while operating system reliability was greatly improved, application reliability gen ...

**Keywords:** I/O, Recovery, device drivers

- 18  **Kernel Korner: The Linux Keyboard**  
Andries E. Brouwer  
June 1995 **Linux Journal**  
Publisher: Specialized Systems Consultants, Inc.

Full text available:  [html \(19.45 KB\)](#)


Additional Information: [full citation](#), [index terms](#)

19 Mobile wireless network system simulation

Joel Short, Rajive Bagrodia, Leonard Kleinrock  
December 1995

**Wireless Networks**, Volume 1 Issue 4

Publisher: Kluwer Academic Publishers

Full text available:  [pdf \(1.70 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)


This paper describes an advanced simulation environment which is used to examine, validate, and predict the performance of mobile wireless network systems. This simulation environment overcomes many of the limitations found with analytical models, experimentation, and other commercial network simulators available on the market today. We identify a set of components which make up mobile wireless systems and describe a set of flexible modules which can be used to model the various components ...

20 Pen computing: a technology overview and a vision

André Meyer  
July 1995

**ACM SIGCHI Bulletin**, Volume 27 Issue 3

Publisher: ACM Press

Full text available:  [pdf \(5.14 MB\)](#)





Additional Information: [full citation](#), [abstract](#), [chapters](#), [index terms](#)

This work gives an overview of a new technology that is attracting growing interest in public as well as in the computer industry itself. The visible difference from other technologies is in the use of a pen or pencil as the primary means of interaction between a user and a machine, picking up the familiar pen and paper interface metaphor. From this follows a set of consequences that will be analyzed and put into context with other emerging technologies and visions. Starting with a short historic ...

Results 1 - 20 of 200

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## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	384	cmw	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 07:03
L2	22	(compartment\$4 mode workstation)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 07:04
L3	4	(compartment\$4 mode workstation) and (mult\$4 same security same window)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 07:05
L4	10	(compartment\$4 mode workstation) and (mult\$4 same security)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 07:06
L5	8	(compartment\$4 mode workstation) and (mult\$4 near9 security)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 07:07
L6	309	((mult\$4 or multiple) near9 security) same window	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 07:13
L7	113	((mult\$4 or multiple) near9 security) near9 window	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 07:09
L8	61	((mult\$4 or multiple) near9 security) near9 window and mode	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 07:09
L9	4	((mult\$4 or multiple) near9 security) near9 window and ((secure or prefered) near3 mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 07:10

## EAST Search History

L10	10	((mult\$4 or multiple) near9 security) same (window security)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 07:13
L11	8	((mult\$4 or multiple) near9 window near9 security) same (window security)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 07:14
L12	111	((mult\$4 or multiple) near9 window near9 security)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 07:14
L13	4	((mult\$4 or multiple) near9 window near9 security) and ((secure or prefered) near3 mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 07:21
L14	5	((mult\$4 or multiple) near9 window near9 security) and ((normal) near3 mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 08:20
L15	1475	user same select\$4 near9 ((multiple or different) near5 application)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 08:21
L16	330	user near9 select\$4 near9 ((multiple) near5 application)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 08:21
L17	0	user near9 select\$4 near9 ((multiple) near5 application) same (secure mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 08:22
L18	2	user near9 select\$4 near9 ((multiple) near5 application) and (secure mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 09:46
L19	8594	(chang\$4 or switch\$4 or exit\$4 or leav\$4) near9 (normal mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 09:54

## EAST Search History

L20	7	(chang\$4 or switch\$4 or exit\$4 or leav\$4) near9 (normal mode) near9 ((execut\$4 or run\$4) near4 application)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 10:15
L21	42	(kernel security)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 10:15
L22	3	(kernel security) and (windows NT)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 10:16
L23	453	(kernel (mode or security)) and (windows NT)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 10:17
L24	189	(kernel (mode or security)) same (windows NT)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 11:41
L25	380	713/164.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 11:41
L26	4	713/164.ccls. and (windows security)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 11:42
L27	22	713/164.ccls. and (windows near4 security)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 13:10
L28	13	713/189.ccls. and (windows near4 security)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 11:46
L29	1121	713/189.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 11:46



## EAST Search History

L30	1	(application and kernel and mode and ((CPU reset) or power) and key and instantiat\$4 and (authenticat\$4 or decrypt\$4)).clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 11:49
L31	15	713/164.ccls. and (windows near4 security) and mode	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/01/10 13:11
S1	96	"security kernel"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/10 07:03
S2	49	"security kernel" and @ad < "19990327"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/21 12:03
S3	6	("security kernel" and @ad < "19990327") and ("security kernel" with processor)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/18 10:18
S4	1	((("security kernel" and @ad < "19990327") and ("security kernel" with processor)) and ("security kernel" with authenticat\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/18 10:21
S5	5	("security kernel" with authenticat\$3) and @ad < "19990327"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/18 10:33
S6	15	"security kernel" with authenticat\$3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/18 10:27
S7	5	((("security kernel" with authenticat\$3) and @ad < "19990327") and (authenticat\$3 with key)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/20 14:30
S8	0	((("security kernel" with authenticat\$3) and @ad < "19990327") and (authenticat\$3 with key)) and (authenticat\$3 with ("private key" or "security key"))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/18 10:48

## EAST Search History

S9	673	processor with ("security key" or "private key" or "common key")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/19 13:12
S10	211	(processor with ("security key" or "private key" or "common key")) and @ad < "19990327"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/19 13:19
S12	0	"normal mode" with "preferred mode"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/20 14:30
S13	1617	(CPU or processor) with "normal mode"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/20 14:31
S14	1014	((CPU or processor) with "normal mode") and @ad < "19990327"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/20 14:32
S15	0	(((((CPU or processor) with "normal mode") and @ad < "19990327") and ("power up" or "start up" or "boot up"))) and (CPU with (inaccessible or "not accessible"))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/20 14:35
S16	0	((((CPU or processor) with "normal mode") and @ad < "19990327") and (CPU with (inaccessible or "not accessible"))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/20 14:35
S17	0	(((((CPU or processor) with "normal mode") and @ad < "19990327") and ("power up" or "start up" or "boot up"))) and 713/164.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/20 14:36
S18	152	((((CPU or processor) with "normal mode") and @ad < "19990327") and ("power up" or "start up" or "boot up"))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/20 14:43

## EAST Search History

S19	18	(((((CPU or processor) with "normal mode") and @ad < "19990327") and ("power up" or "start up" or "boot up")) and (encrypt\$3 or decrypt\$3 or cypher\$3 or scrambl\$3 or cryptography)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/20 17:01
S20	2	"5029206".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/20 17:04
S21	1	"5029206".pn. and (encryption with (proc\$4 or black))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/20 17:34
S22	112	("6240429" "66" "6253217" "66" "6266682" "66" "6269380" "66" "6324551" "66" "6330573" "66" "6370553" "66" "6397231" "66" "6772340" "66" "6775655" "66" "6182218" "65" "6424715" "65" "6002772" "65" "4264782" "65" "5745569" "65" "5784464" "65" "5898777" "65" "5978482" "65" "6002769" "65" "6038316" "65" "6141754" "65" "5523859" "65" "5878135" "65" "5933500" "65" "5991399" "65" "6016348" "65" "6023509" "65" "6098056" "65" "6108788" "65" "6199053" "65" "6253193" "65" "6282573" "65" "6289455" "65" "6292569" "65" "6314521" "65" "6363488" "65" "6385596" "65" "6385728" "65" "6389402" "65" "6408330" "65" "6427140" "65" "6516413" "65" "6741991" "65" "6799271" "65" "6697944" "58" "6801999" "58" "5822432" "57" "5905800" "57" "5875249" "57" "6105137" "57").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/21 11:38
S25	945	(((((encrypt\$3 or encipher or cipher or scrambl\$3) with (data or text or application)) and @ad < "19990327") and ((encrypt\$3 or encipher or cipher or scrambl\$3) with (key\$1))) and authenticat\$3) and hash\$3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/21 12:19

## EAST Search History

S26	297	(((((encrypt\$3 or encipher or cipher or scrambl\$3) with (data or text or application)) and @ad < "19990327") and ((encrypt\$3 or encipher or cipher or scrambl\$3) with (key\$1))) and authenticat\$3) and hash\$3) and ((compar\$3 or match) with hash)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/21 12:20
S27	277	(((((encrypt\$3 or encipher or cipher or scrambl\$3) with (data or text or application)) and @ad < "19990327") and ((encrypt\$3 or encipher or cipher or scrambl\$3) with (key\$1))) and authenticat\$3) and hash\$3) and ((compar\$3 or match) with hash)) and (asymmetric or "public key" or RSA)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/21 12:21
S28	207	(((((((((encrypt\$3 or encipher or cipher or scrambl\$3) with (data or text or application)) and @ad < "19990327") and ((encrypt\$3 or encipher or cipher or scrambl\$3) with (key\$1))) and authenticat\$3) and hash\$3) and ((compar\$3 or match) with hash)) and (asymmetric or "public key" or RSA)) and (symmetric or "common key" or DES)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/21 12:21
S29	59	(((((((((encrypt\$3 or encipher or cipher or scrambl\$3) with (data or text or application)) and @ad < "19990327") and ((encrypt\$3 or encipher or cipher or scrambl\$3) with (key\$1))) and authenticat\$3) and hash\$3) and ((compar\$3 or match) with hash)) and (asymmetric or "public key" or RSA)) and (symmetric or "common key" or DES)) and ("copy right" or copyright)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/21 12:22

## EAST Search History

S30	16	(((((encrypt\$3 or encipher or cipher or scrambl\$3) with (data or text or application)) and @ad < "19990327") and ((encrypt\$3 or encipher or cipher or scrambl\$3) with (key\$1))) and authenticat\$3) and hash\$3) and ((compar\$3 or match) with hash)) and (asymmetric or "public key" or RSA)) and (symmetric or "common key" or DES)) and ("copy right" or copyright)) and ((user or consumer) with ((select\$3 or choos\$3 or option) with (data or ebook or "electronic book" or cd or song or application)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/21 13:39
S31	10	(((((encrypt\$3 or encipher or cipher or scrambl\$3) with (data or text or application)) and @ad < "19990327") and ((encrypt\$3 or encipher or cipher or scrambl\$3) with (key\$1))) and authenticat\$3) and hash\$3) and ((compar\$3 or match) with hash)) and (asymmetric or "public key" or RSA)) and (symmetric or "common key" or DES)) and ("copy right" or copyright)) and ((user or consumer) with ((select\$3 or choos\$3 or option) with (data or ebook or "electronic book" or cd or song or application))) ) and laptop	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/10/21 13:40
S32	2	"6577734".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/06 14:45
S33	4	("security kernel" or kernel or "operating system" or "os") with ((re\$1encrypt\$3 or re\$encipher or re\$1scrambl\$2) near2 key)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/08 06:11
S34	0	("security kernel" or kernel or "operating system") with ((re\$1encrypt\$3 or re\$encipher or re\$1scrambl\$2) near2 key)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/06 14:49
S35	3	("security kernel" or kernel or "operating system") same ((re\$1encrypt\$3 or re\$encipher or re\$1scrambl\$2) near2 key)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/08 06:12

## EAST Search History

S36	703	("security kernel" or kernel or "operating system") same ((encrypt\$3 or encipher or scrambl\$2) near2 key)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/06 14:51
S37	72	("security kernel" or kernel) with ((encrypt\$3 or encipher or scrambl\$2) near2 key)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/06 14:52
S38	1	("security kernel" or kernel) with ((encrypting or enciphering or scrambling) near2 key)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/06 14:53
S39	11	("security kernel" or kernel) same ((encrypting or enciphering or scrambling) near2 key)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/06 14:56
S40	27	("security kernel" or kernel) same ((encrypted or enciphered or scrambled) near2 key)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/06 15:04
S41	22	("security kernel" or kernel) same (key adj (encryption or enciphering or scrambling))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/07 06:30
S42	2	"5029206".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/07 06:30
S43	230	713/164.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/07 07:49
S45	6	713/164.ccls. and ((kernel near6 (encryption or cipher or scramble)) adj key)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/07 07:52
S46	1	kernel same instantiat\$3 same ((application or data or program or text) near3 (encrypt\$3 or encipher\$3 or scrambl\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/07 09:32

## EAST Search History

S47	1	kernel same instantiat\$3 same ((application or data or program or text) same (encrypt\$3 or encipher\$3 or scrambl\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/07 09:32
S48	10	kernel and instantiat\$3 same ((application or data or program or text) same (encrypt\$3 or encipher\$3 or scrambl\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/07 09:32
S49	0	"security kernel" with ((cpu or processor) near2 reset) with ((preferred or secure) adj mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/08 06:28
S50	0	"security kernel" same ((cpu or processor) near2 reset) same ((preferred or secure) adj mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/08 06:28
S51	0	("security kernel" or kernel) same ((cpu or processor) near2 reset) same ((preferred or secure) adj mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/08 06:29
S52	0	("security kernel" or kernel) and ((cpu or processor) near2 reset) same ((preferred or secure) adj mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/08 06:29
S53	1	("security kernel" or kernel) and ((cpu or processor) near2 reset) and ((preferred or secure) adj mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/08 06:30
S54	1	713/2.ccls. and ((cpu or processor) near2 reset) and ((preferred or secure) adj mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/08 06:31
S55	0	713/1.ccls. and ((cpu or processor) near2 reset) and ((preferred or secure) adj mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/08 06:47
S56	2	"5530758".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/08 07:22

## EAST Search History

S58	3	"6557104".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/09 12:53
S59	3	"6557104".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/11 11:01
S60	18	("secure mode" with (bank\$3 or "digital rights management" or DRM or financ\$))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/11 11:04
S61	95	("6829708" "6240429" "6253217" "6266682" "6269380" "6324551" "6330573" "6370553" "6397231" "6772340" "6775655" "6816596" "6876984" "6182218" "6424715" "6002772" "4264782" "5745569" "5784464" "5898777" "5978482" "6002769" "6038316" "6141754" "5523859" "5878135" "5933500" "5991399" "6016348" "6023509" "6098056" "6108788" "6199053" "6253193" "6282573" "6289455" "6292569" "6314521" "6363488" "6385596" "6385728" "6389402" "6408330" "6427140" "6516413" "6741991" "6799271" "6850252" "6868403" "6697944").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/11 16:35
S62	52	S61 and (bank\$3 or "digital rights management" or DRM or rights or financ\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/11 16:39
S63	12	S61 and (bank\$3 or "digital rights management" or DRM or rights or financ\$3) and (kernel or "secure mode" or "preferred mode")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/04/11 16:39
S64	0	key same ((secure or preferred or safe or tamper\$4) near2 mode) same ((content or movie or (digital data) or (electronic document) or (electronic book)) near3 distribution)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/08/05 11:26



## EAST Search History

S65	1222	(secure or prefer\$3) adj mode	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/10/07 14:00
S66	11	(secure or prefer\$3) adj mode near6 (eras\$4 or delet\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/10/07 14:04
S67	11	(secure or prefer\$3) adj mode near9 (eras\$4 or delet\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/10/07 14:04
S68	23	(secure or prefer\$3) near2 mode near9 (eras\$4 or delet\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/10/07 14:05
S69	1	(secure or prefer\$3) near2 mode near9 (destroy\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/10/07 14:07
S70	24	(secure or prefer\$3) near2 mode near9 (delet\$4 or eras\$4 or destroy\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/10/07 14:07
S71	25	(secure or prefer\$3) near2 mode near13 (delet\$4 or eras\$4 or destroy\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/10/07 14:07
S72	27	(secure or prefer\$3) near2 mode near20 (delet\$4 or eras\$4 or destroy\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/10/07 14:26
S73	351	(secure or prefer\$3 or security or kernel) near2 (mode or state or proces\$5) near20 (delet\$4 or eras\$4 or destroy\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/10/07 14:27
S74	267	(secure or prefer\$3 or security or kernel) near2 (mode or state or proces\$5) near9 (delet\$4 or eras\$4 or destroy\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2005/10/07 14:27

## EAST Search History

S75	127	(secure or prefer\$3 or security or kernel) near2 (mode or state) near9 (delet\$4 or eras\$4 or destroy\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/01/12 16:14
S76	2	"5537540".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/06/26 09:47
S78	137	((pre\$1boot\$4) or (boot\$3 near up) or (power\$3 near (up or on)) or (bios) or (basic input output system) or (re\$1set)) same (secure mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/06/26 09:50
S79	536	((pre\$1boot\$4) or (boot\$3 near up) or (power\$3 near (up or on)) or (bios) or (basic input output system) or (re\$1set)) same ((password or key) near2 (verif\$6 or authenticat\$4))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/06/26 13:43
S84	57	((pre\$1boot\$4) or (boot\$3 near up) or (power\$3 near (up or on)) or (bios) or (basic input output system) or (re\$1set)) same ((password or key) near2 (verif\$6 or authenticat\$4)) same (application)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/06/26 14:10
S87	40	authenticat\$4 near9 initializ\$4 near9 (application or software or firmware)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/06/26 14:13
S88	209	((switch\$4) near2 back) near7 ((secure or normal) mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/06/27 06:49
S89	7	((switch\$4) near2 back) near7 ((secure) mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/06/27 06:42
S90	0	((enter\$4) near2 back) near7 ((secure) mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/06/27 06:42

## EAST Search History

S91	62	(back) near7 ((secure) mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/06/27 06:47
S92	7	(re adj2 (enter\$4 or transmit\$4 or chang\$4 or vert\$4)) near7 ((secure) mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/06/27 06:48
S93	3	((enter\$4 or transmit\$4 or chang\$4 or vert\$4 or going) near2 back) near7 ((secure) mode)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2006/06/27 06:49

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